37. A transceiver including:

an antenna for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

signal processor means for receiving from the antenna a third electrical signal based on the first RF electromagnetic signal; and

modulator means disposed in series between the antenna and the signal processor means for providing a fourth electrical signal to the antenna to produce the second RF electromagnetic signal, the modulator means varying the series impedance between the antenna and the signal processor means.

38. A transceiver according to claim 37 wherein the transceiver is a transponder and the first and second signals are modulated at a first frequency and a second frequency respectively, the first and second frequencies being different to each other.

39. A transceiver according to claim 38 wherein the transponder is passive and the signal processor means includes processing circuitry and power storage means, wherein some of the power provided by the third signal is stored in the power storage means for subsequently powering the transponder.

40. A transceiver according to claim 39 wherein the impedance is varied between the high and the low value at a rate greater than the DC slew rate for the third signal.

41. A transceiver according to claim 40 wherein the impedance is a resistance.

42. A transceiver according to claim ~~1~~ 37 wherein the antenna is a coil which is tuned by a capacitor.

43. A transceiver according to claim ~~6~~ 42 wherein the modulator means varies the impedance between the antenna and the signal processor means, such that the antenna simultaneously has a high Q factor for signals received by the antenna and a low Q factor for signals transmitted from the antenna.

44. A transceiver according to claim ~~1~~ 37 wherein the voltage across the antenna is modulated or varied in a predetermined manner to generate the second signal.

45. A transceiver according to claim ~~8~~ 44 wherein the modulation or variation in antenna voltage corresponds to a proportional variation in the antenna current.

46. A transceiver according to claim ~~9~~ 45 wherein the modulator means varies a low impedance which is disposed in series between the antenna and the signal processor means to cause a variation in the voltage across the antenna.

47. A transceiver according to claim ~~10~~ 46 wherein the low impedance is less than 10% of the total load impedance seen by the antenna.

48. A transceiver according to claim ~~10~~ 46 wherein the impedance is modulated with an RF sub-carrier and data is modulated onto the sub-carrier for transmission.

49. A method for operating a transceiver including the steps of:

providing an antenna for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

providing signal processor means for receiving from the antenna a third electrical signal based on the first RF electromagnetic signal;

providing an impedance for modulation disposed in series between the antenna and signal processor means;

providing a fourth electrical signal to the antenna to produce the second RF electromagnetic signal; and

varying the impedance between the antenna and signal processor means.

50. A passive transponder including:

an antenna for receiving and transmitting a first radio frequency (RF) electromagnetic signal and a second RF electromagnetic signal respectively;

signal processor means for: receiving a third electrical signal from the antenna which is derived from the first RF electromagnetic signal; and providing a fourth electrical signal derived from the third electrical signal;

power storage means in parallel with the signal processor means for absorbing some of the power of the third electrical signal, the absorbed power being subsequently used by the transponder;

modulator means disposed in series between the antenna and the power storage means for selectively varying the impedance therebetween to generate the second RF electromagnetic signal; and

a mixer for producing a fifth signal by combining the fourth electrical signal with a sub-carrier, the fifth signal being provided to the modulator means.

51. A transponder according to claim ~~14~~ 50 wherein the modulator means varies the impedance in accordance with the fifth signal.

52. A transponder according to claim ~~51~~ 50 wherein the impedance is a resistance.

53. A transponder according to claim ~~14~~ 50 wherein the power storage means includes a capacitor.

54. An antenna for receiving and transmitting a first radiofrequency (RF) electromagnetic signal and a second RF electromagnetic signal respectively, the antenna including:

a tuned coil in which the first signal generates a first current and which supports a second current for generating said second signal; and

modulator means disposed in series with the antenna, said first and second currents flowing through said modulator for providing said coil with a simultaneous dual Q factor, the Q factor being high for the first current and low for the second current.

55. An antenna according to claim ~~18~~ 54 wherein the first current or a signal derived from the first current is provided to a signal processing means whereby the modulator means varies the impedance between the coil and the processing means.

56. An antenna according to claim ~~19~~ 55 wherein the impedance is a resistance which is switched between a predetermined value and negligible resistance.

57. A transceiver including:

an antenna for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

signal processor means for receiving from the antenna a third electrical signal indicative of the first signal; and

modulator means disposed in series between the antenna and the signal processor means for providing a fourth electrical signal to the antenna to produce the second

signal, the modulator means varying the voltage across the antenna in a substantially stepwise manner to effect a variation in the current flowing through the antenna between a low and a high value for allowing transmission of the second signal without substantially affecting the receiving efficiency of the antenna.

58. A transceiver according to claim 57 wherein the first signal includes a carrier signal and the variation of the current between the low and the high value occurs within less than or about one period of the carrier signal.

59. A method for operating a transceiver including the steps of:

providing an antenna for receiving a first radio frequency (RF) electromagnetic signal and transmitting a second RF electromagnetic signal;

providing signal processor means for receiving from the antenna a third electrical signal based on the first signal;

providing a modulator disposed in series between the antenna and the signal processor means;

providing a fourth electrical signal to the antenna to produce the second signal; and

varying the impedance of the modulator, thereby to vary the voltage across the antenna in a substantially stepwise manner to effect a variation in the current flowing through the antenna between a low and a high value for allowing transmission of the second signal without substantially effecting the receiving efficiency of the antenna.

60. A transceiver including:

an antenna for receiving a first radio frequency (RF) electromagnetic signal having a first predetermined frequency and, in response thereto, generating a second electrical signal;

receiving circuitry being responsive to the second signal;

tuning circuitry for providing the antenna with a resonant frequency at or about the first predetermined frequency; and

a modulator disposed in series between the antenna and the tuning circuitry for varying the impedance therebetween such that the second signal generates a third electrical signal in the antenna at a second predetermined frequency and the antenna transmits a fourth RF electromagnetic signal derived from the third signal.

61. A transceiver according to claim ~~24~~ 60 wherein the first and second predetermined frequencies are substantially different.

62. A transceiver according to claim ~~24~~ 60 wherein the antenna includes a coil and the tuning circuit includes a capacitor connected in parallel with the coil.

63. A transceiver according to claim ~~26~~ 62 wherein the antenna consists of a coil and the tuning circuit consists of a capacitor.

64. A transceiver according to claim ~~24~~ 60 wherein the modulator is connected in series with the capacitor.

65. A transceiver according to claim ~~24~~ 60 wherein the receiving circuitry, in response to the second signal, actuates the modulator to provide the third signal.

66. A transceiver according to claim ~~29~~ 65 wherein the third signal is modulated in accordance with a data signal specific to that transceiver.

67. A transceiver according to claim ~~30~~ 66 wherein the data signal is stored in the receiving circuitry and selectively provided to the modulator.

68. A transceiver according to claim ~~31~~ 67 wherein the second signal is the current generated in the antenna by the first signal.

69. A transceiver according to claim ~~31~~ 67 wherein the second signal is the voltage induced across the tuning circuitry by the first signal.

70. A tuned antenna including:

a coil for receiving a first radio frequency (RF) electromagnetic signal having a first predetermined frequency and thereby generating a second electrical signal;

a capacitor connected in parallel with the coil for providing the antenna with a resonant frequency at or about the first predetermined frequency; and

a modulator disposed in series with the capacitor for providing a varying impedance such that the second signal generates a third electrical signal in the coil at a second predetermined frequency whereby the coil transmits a fourth RF electromagnetic signal derived from the third signal.

71. A method for receiving and transmitting a first radio frequency (RF) electromagnetic signal and a fourth RF electromagnetic signal respectively to and from a transceiver, the method including the steps of:

receiving the first signal with an antenna and, in response thereto, generating a second electrical signal within the antenna, the first signal having a first predetermined frequency;

providing the second signal to receiving circuitry;

tuning the antenna with tuning circuitry to have a resonant frequency at or about the first predetermined frequency; and

varying the impedance between the antenna and the tuning circuitry such that the second signal generates a third electrical signal in the antenna at a second predetermined frequency and the antenna derives from the third signal and transmits the fourth signal.

72. A method for receiving and transmitting a first radio frequency (RF) electromagnetic signal and a fourth RF electromagnetic signal respectively, the method including the steps of:

receiving the first signal with a coil having a first predetermined frequency;

connecting a capacitor in parallel with the coil for providing the antenna with a resonant frequency at or about the first predetermined frequency;

generating a second electrical signal from the first signal; and

disposing a modulator in series with the capacitor for both providing a varying impedance such that the second signal generates a third electrical signal in the coil at a second predetermined frequency whereby the coil transmits the fourth signal which is derived from the third signal.